

Admiral John Richardson, CNO
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Admiral Richardson: Well, thank you everybody. Tom, thank you for that very generous introduction. It's good to see you again, be able to get a chance to work together, your time, helping us think more strategically around town, but particularly at the War College. Just have been as thick as thieves for some time.

I'll tell you what, I want to thank also CSCA and Booze Allen for inviting me here. It's a great opportunity. And we were talking at our table, you know, you get to these positions, and I'm sure you've all been there. You get a lot of invitations to talk, and probably 60 percent of those go into like okay, I'll consider that invitation and we'll take it on board. Some percentage, a good percentage are you know, I really don't want to do that, but I probably should.

And then there's that sliver of talks where it's sort of you know what? I want to do that. I want to go talk to those folks because I've got something to tell them. And that's where I find myself this afternoon. This is a group that I really am eager to talk to because I think the topic of this summit, Directed Energy, has implications far beyond just the pure technology. So that's really where I'm going to focus my comments today because it's just been too long since I did that physics and double E stuff. I can't hold my own in that anymore.

But let me tell you what I want to do, though. I'm going to try and, you get the post-lunch speaker role, and you're always wondering what to do with that. I'm going to ask you to join me in a thought experiment, and then through this, as we guide our way through this, as we work our way through it, I'm going to ask for some audience participation. Okay? So you've all had some fair warning. Really, raise your hands, make sure that they do raise up. Okay. All right, excellent. Thank you. So we've all got the physical ability to raise our hands and ask a question. I look forward to more of that.

And the analogy goes like this. I'm going to use a sports analogy just because I find a lot of people can kind of connect with those. Everybody, you know, stop thinking about the Final Four and all that, so lots of sports energy in these times.

So we'll start with the first half of the game. We're all suited up. We go out, we take the court or the field, and boy, we pitch a great first game. First half. Everybody's sweating, everybody's moving at max speed, executing plays, just like with laser precision. And we roll into the half at, with a score of 30-0. I mean real really are dominating the game.

And we come down there, you know, lots of high-fives, do we dump the Gatorade now or not? I don't know. You know? And but we're close, we're thinking about that. We sit down. It's not one of those discussions in the locker room like hey, we really have to get our act together and take the field again. We've got a huge list ahead of us. We've got to do better. There's none of that. Thirty to zero. There's a lot of over-confidence. There's a lot of hey, we've got this. We just need to kind of finish it out. We even get a little bit of food served, we get it catered.

We're sitting there, it's going on, and it's going on, and you know, some of the more experienced people in the room are starting to think, you know, the half time seems to be lasting an awful long time here. It's kind of longer than I'm used to sitting in the locker room. And somebody comes in in fact a few minutes later and says hey, you guys, let's get going. The third quarter has started. The third quarter is underway. And we all, holy cow, we suit up and we go out and not only has the third quarter started, but the score is now 30-28. Okay?

You're the coach of that team. What would be your concern? This is the hand raising part.

Audience: [Inaudible]

Admiral Richardson: Sequestration? [Laughter]. All right.

You've exited the thought experiment. [Laughter].

Any other concerns?

Audience: [Inaudible].

Admiral Richardson: All right. We went in, I would say, into the locker room with a fairly non-competitive attitude and we are now getting back on the field with a two-point margin. Our lead has shrunk from 30 points to 2 points. So to your point, it's really time to get our head back in the game. Right?

Sir?

Audience: [Inaudible]

Admiral Richardson: Okay, you might want to, you know, there's a couple of managers that have probably lost their job. Right? But we kind of have to think about why weren't we aware that the third quarter had started. Right?

Yeah?

Audience: [Inaudible]

Admiral Richardson: Yeah, we're picking this up in mid-stride now right? There's a team that's on that field and they are moving out. In fact they scored 28 points while we were thinking about how great we were. So we've got to get SA.

Ma'am?

Audience: What do we have to do to win?

Admiral Richardson: What do we have to do to win. Okay. So you kind of have it.

I think that analogy is not too far off of where we find ourselves right now. We went into 25 years or so ago a situation where we were ahead 30-0, and we find ourselves now I think still trying to be convinced that the third quarter is underway and that the lead has shrunk significantly. And until we get that sense of urgency, the sense that this is a true competition, at the end there will be winners and losers in this contest, and that there's a sense of urgency because after all, we are coming out. You know? We're stiff. We've been in the locker room. We're all cooled down and we're coming up against some opponents that are not stiff, they're warmed up, and they're playing the game. Until we get that it's going to be really tough to win that game.

Now I would say that since, in those last 25 years, it's even I would say more complicated than the analogy. Analogies are what they are, right? Somebody told me once about modeling and analogies. The best model of a cat is a cat. I get that. But if you sort of build on my analogy a little bit, it's really like we went in playing American football, had a really long halftime and we're coming out and it's soccer. Right? So not

only have we been kind of non-competitive, riding on that lead for a while, but during that time the game changed. It's moving much faster now. It's much more complex. And oh by the way, the competitors have changed. So it might not even be the same team. In fact it certainly is not the same team that it was when we last competed.

And where I'm taking this is that facing the complexity of our situation require, and I think the outcome or the manifestation of being in the locker room that long, we have, I would hypothesize, have lost our true ability to compete in time. We are just insensitive to the time dimension of this competition. In both the short term and in the long term, competing in time is going to be required to maintain our edge. We're just going to have to speed up. You don't have to look very far to find examples of I think a non-competitive approach to our business. It's everywhere you look.

You mentioned sequestration, so we're out of the thought experiment now, and it's not just sequestration. Eight of the last years we've been under a Continuing Resolution. In fact we've spent 30 percent of the last eight years on a CR. Okay? And in areas like here where we're trying to start something new it's more than just budgetary issues. It's authority to get new things started. Okay? It's very non-competitive.

Industry folks, try maintaining your competitive edge when you work three fiscal quarters and you don't have a budget for the fourth.

For you runners in the world, another sports analogy. Try winning the mile race when you spot your competition a lap. You can do that, but you have to be really, really fast. Much faster than your competition, and we just aren't.

We're far too bureaucratic. Once we even get the funding in place, oh, by the way, not only did we start a lap behind, but we kind of have a drag chute of sequestration once we get rolling. Okay? But even when all that gets in place, we take too long to do stuff. We were talking again, you know, kind of at the table. It's just much too bureaucratic and process oriented. The result, again, of just kind of being over-confident about things. And so you know, in fact I've kind of, the hair on the back of my neck stands up when I read about this or that road map. I just know that that's going to be a long road on which we travel slowly. Most of the time. Right? It's a bureaucratic thing.

There's somebody in the room, was it RPI or Rochester?
Rochester. Who's the gentleman from Rochester who built the
laser in his garage. Is he in the room right now? Maybe not.
I'll tell you what, -- there he is. Stand up. Let's give him a
round of applause. [Applause].

Thanks. So here's a guy who knows how to get things done.
Right? What's the power of that laser? 200 watts? All right.
That's not bad for your garage. Did you poke any holes in your
walls? What's that? A few. Yeah. [Laughter]. You've got to
be, fail fast is what they say.

But I'll tell you what, in acquisition in particular, I would
say the idea of an aggressive deadline, the idea of competing in
the short term has become far less the norm. Trending towards
hard to stimulate. Taking longer to introduce new weapon
systems and they are costing more. Far more. And those two
things are related, right? The longer it takes something to do,
almost always the more it costs. We try and review risk out of
the system with administrative layers. We could prototype our
risk out of the system much more effectively if we just get
something out there and run it through its paces.

So we desperately need more agility in acquisition, and I would
ask all of you industry partners, and I use that word
deliberately, partners, to help us through this. We must work,
and in this area academia as well, right? Not just industry but
academia. We have got to work together to speed this machine
up, to get this fly wheel turning, to pull new technologies
forward that can change how we do business. And I think that
there are two case studies for doing this that we are working
hard on in the Navy. These are autonomy and directed energy,
which is why I really wanted to come and talk to this audience.

I think the implications of getting directed energy out on the
field quickly, first, in relevant ways, will be
transformational. And it's the same with autonomy, so I'll save
that part of the talk for the autonomy conference.

But if you think about these transformational technologies, how
can you identify them? As Tom said, I'm the only guy to be
fired from naval reactors. But I'll tell you, that nuclear
propulsion technology, nuclear power was a transformational
technology just in defense. So when it became possible to take
a submarine and submerge it essentially for as long as you want,

okay? That gave rise to a whole family of sciences that grew up to meet that potential. Okay?

Oceanography blossomed because we were now residents of the ocean. We weren't visitors. We were down there for a long time and so we had to figure out what that was like.

We still don't have windows on those dang things, and so we had to figure out underwater acoustics and acoustics technology.

Navigation, especially inertial navigation and all the science that had to arise about that.

Missile technology for the SSBN program and its partner, the ICBM program. All of this you know, rising together sort of pulled along by the potential offered by nuclear power.

It's interesting, one of the first jobs I had when I was at naval reactors was to give a speech to inactivate the carrier Enterprise. After 52 years of service. Just as relevant after 52 years as she was when she was commissioned. First mission, Cuba Missile Crisis. Last mission, Operation Enduring Freedom. And everything in between. Think about how the world had changed in those 52 years, and Enterprise with her embarked air wing had maintained relevance throughout those tides that were changing.

But I'll tell you the technology, again, is interesting. Because of Enterprise we revolutionized logistics support in the Navy so that we could supply that ship underway.

We out-performed every possible metric, and even the air wing, you know, lots more gas, lots more ordnance because they didn't have to have fuel tanks on board. In fact even the maintenance on the aircraft was easier because the precipitate that would come out of the stacks from a fossil fuel plant, that would all come down on the aircraft and eat away and require more maintenance.

So it really was a transformational technology.

I think directed energy is the same type of a thing. If you think about the supporting sciences that will have to rise up to meet the potential of directed energy, and just as important, those things, those technologies that will sunset and rendered irrelevant by virtue of what directed energy can bring, you can see why this is a case study. You can see why we all have to

hunker down on this one hard, get this done fast and right, and be first on the field with this capability.

Okay. So we've been poking around in there. I've had the opportunity to travel around in places, the directed energy technology corridor and seen a lot of this, and I'm, what I see, I'm very hopeful. I think that from my layman's assessment, there are no major technology obstacles which stand in our way of getting this thing out. So we are pushing hard in the Navy to move this forward in like the next couple of years. Okay, getting something out.

And it is clear to me that if this thing, if we can do this right it will be transformational. It will not only be revolution in terms of what we can do with naval warfare, but it will also put us on the right side of the cost curve. A classic win/win. It's not often that these things come along that have benefits across such a wide spectrum.

And as I said, once we get that rolling, once that stone starts rolling downhill, the supporting technology that will come in behind it will give everybody in this room a chance to have a piece of that success. This is a place where I think a lot of people will have plenty to do and plenty of winners.

So it will take a whole range of subject matter expertise. It will take a lot of people working together to move this thing through its sort of prototyping phase, to get it into a tactically relevant useful system in all the environments that we need to use them, from space down to air, all the way down to the maritime environment, which is challenging for a laser. Those marine layers, you get down there, saltwater is just never good. It makes things hard including using these weapons. But I think it's absolutely essential. So we're all in in the Navy, we're pushing this forward. I personally kind of push on this myself. We're committed to moving forward as fast as we can.

If we can do that, then I think we'll have a great step forward. And think about the step just beyond that. But we have got to come out of the locker room. We have got to gear up. We have got to realize that this is a competition that will have winners and losers. We have to feel that sense of butterflies in our gut or all the talking and everything will not matter. All right? We've got to be able to compete in time.

That's my talk to you this morning. Thanks for joining me in my thought experiment. Thanks for inviting me again, Tom, and I look forward to your questions. Thanks.

Audience: Hello, sir. I'm curious, I work for the Naval Sea Systems Command, and I'm curious given the new administration's direction to move towards 355 ships, how do you balance in your priorities sort of building the same ships but faster to increase the fleet size versus investment in new what you call transformative technologies like directed energy?

Admiral Richardson: That's a really great question. It kind of goes to the 355 ship number. I think, well at least as I think about it, it's not so much that we're going to build 355 ships. Right? What we did with that study, and another thing. There are a number of studies that are out there that talk about fleet design and fleet architecture type of issues. And they're all converging in, you know, numbers around the mid-300's. They're all pretty consistent in that regard. So our study kind of was consistent as well. Our analysis was very consistent with some of the others.

But as I think about it, those 355 ships, as you said, are sort of our concept using today's ships, today's technologies.

We've done some other studies that are sort of like okay, what can we do with tomorrow's technologies, tomorrow's concepts? And then, you know, how do we stitch those together? If this is sort of the potential that I want to look forward to achieving, the capability using new technologies, new operating concepts, how do I dovetail those into what I know I can build today? So there's kind of an immediate action phase, if we want to go to a more capable Navy, a more powerful Navy. We advocate that we should strive to that. Right now, the good news is I've got some shipbuilding production lines that are hot and we can build ships faster.

The ones that are, we have designs and the production lines are hot, we're confident that they'll be relevant into the foreseeable future. So they're good investments. But even as we do that, we've got to be taking a look at some of these other technologies. And I named two, right? Autonomy, unmanned type of thing; and directed energy. And boy, you put those two things together and it really starts to spark your imagination.

So if you can think about drawing you know, a graph. Just picture it in your mind. ON the X axis is time that's going out

a number of years. On the Y axis is numbers of ships. And you can see there's some path to 355, 350, mid 300's.

Then you sort of switch axis, which drives me nuts when I'm taking briefs, but bear with me. It's not so much ships, but capability. Okay? And you want to achieve the equivalent capability of 355 of today's ships. I think directed energy's going to play a big part in making that, achieving that level of capability. Autonomy is going to play a big part in achieving that level of capability. Maybe with, hopefully, right, with a different investment profile to get us there.

So this is the sort of work that we're thinking through right now.

Audience: -- with National Defense Magazine.

Last year during the last Directed Energy Summit Admiral Moran said a 150 kilowatt laser would soon be tested on a Navy ship. I was wondering if that test has occurred so far? If not, when it would be occurring, what ship would it be occurring on. And also if you can talk about anything going on with the Ponce and the laser on that. Thank you.

Admiral Richardson: What are you going to actually do with the new capability? Let me tell you another part of this competitive environment is that I'm going to be far more reluctant to talk about things like that. All right? Because people are listening. So when it comes to specific capabilities, when it comes to specific schedules, specific operations, mapping capabilities in to schedules, I'd rather find a more appropriately cleared room to talk about that. So I guess that's my answer. That's part of competing in my world. Okay? Thanks.

We're taking this competition thing on-board.

Audience: Admiral Kelly Hammitt from Air Force Research Lab. It's a natural follow-on to your first question.

I've seen something in the news about the Navy standing up a program office for directed energy and IWS 2.0. Can you say anything about the thought process going into that? Given this nature of competition, how will you staff that organization? What type of performance metrics would you have there?

Admiral Richardson: Again, the metrics and stuff I'll probably not get into because I think I'd just give away too much.

But as part of this returning to competition, to competing in time, we have stood up I guess an accelerated acquisition program. It has two dimensions to it. One is for those problems that come into us or for opportunities that we see, for which we really don't have a material solution or a doctrinal or operational solution, then we want to put together something and prototype it, right? So we have this ARPED initiative that's kind of a part of the accelerated acquisition program that talks to getting to a solution as quickly as possible. So rapid prototyping, experimentation and development. All right? And it looks across all of our lab structure, it's siding with academia. We want to work kind of according to my vision relatively mature technologies, engineer them together, prototype them, get them out to the fleet as quick as we can, move towards a solution, and then we've got an answer to that problem. There's something to achieve that opportunity.

Then what? Well, now we have a solution and for that or for any other thing for which we have a solution to an urgent problem, how do we get that into production and move it out to the fleet as fast as we can? That's the MACO Office, Maritime Accelerated Capabilities Office. And so that uses every trick in the book, if you will, to try and move this thing through the process as quickly as possible.

The elements of that are one, you've got to have I think on-scene experts. Kind of a team, really, on-scene, where you're doing the actual work. The prototyping and that sort of thing. And that team's got to one, have technical expertise. Two, have authority to move through iterations quickly. Three, have some budget, you know, in which they can operate. And so that's, I think, and we have to partner with industry on this as well. So that's the sort of on-site team that will help us move through the technical steps fast.

And then there's the programmatic team. Who are the [craft] lawyers and advisors in this that can help us back here to navigate through as quickly as possible, get the resident authorities, et cetera. So it's these two teams at either end of the process that will, I hope, accelerate us some and allow us to compete more in time.

Audience: Thank you, Admiral Richardson. Lee [inaudible], Flight Global.

I actually wanted to ask about the hypoxia problem right now in the F-18s. If a fatality occurs from that, how does the Navy plan to move forward? Do you stand down just the specific squadron that that happens in? Do you stand down all of them?

And secondly, how is this problem going to affect Mattis' review of the F-35C versus the Super Hornet?

Admiral Richardson: I'll tell you what, I'd rather not deal in hypotheticals, so you asked a bunch of hypothetical questions.

I will say that we're taking this very seriously. We've got a problem that we're addressing with urgency. There are really no constraints on us helping that. We think we have the risk in the right place and so I'll just leave it at that. Thanks. It's kind of a hypothetical question so we'll just have to see how that plays out.

Audience: Thank you, Admiral. My name is Jeannie Lynn with Voice of Vietnamese Americans. Thank you for all you've done.

So I want to come back to your game of 30 and 28. Would you talk about that? Would you talk about our competitors? The teams that have 28. The other side. And what exactly do they have now that we have to compete with in sense of urgency, especially in the Asia Pacific where you have expertise. Thank you.

Admiral Richardson: Just as a general case, right? [Laughter]. Well, listen, I think you don't have to, first of all, we went into the locker room with 30, so we're still the team of 30, okay? The other teams are the ones that came up to 28. And you've got to be too, it's just an analogy to make my point. So let's be careful not to be too rigid about it.

But I don't think you have to think too hard to see that the relative balance of power has shifted. The competitors, in fact if I go back ten years, Or between five and ten years. If you think about the four-plus-one challenges that we talk about today -- China, Russia, Iran, North Korea and violent extremism, terrorism. China not even on the map ten years ago as a, it wouldn't have been talked about that way. Russia, not really on the map. We've seen that before, but this is much different. North Korea Moving very fast. Iran, also moving very fast. And then there's violent extremism, something that really kind

of transforms itself, doesn't it? Very resilient and just needs persistent attention. So that's just the competitors.

But I'll tell you, just in my business, going to sea and running around in the ocean. In the 25 years since we were last competing, how long do you think people have been going to sea?

Audience participation.

Ten thousand? Five to ten thousand I'd say, right? Easy.

So you think about starting with zero at 5,000 years ago and you draw a line to 1990 in terms of maritime traffic, it increased by a factor of four since 1990. Think of the shape of that curve. That's remarkable. 5,000, 10,000 years of people going to sea has quadrupled in the last quarter century. It's almost like a spike when you draw that out.

And it's not just ships at sea. It's infrastructure on the sea floor. It is, the ice cap is as small as it has been in our lifetimes for, yeah, just about everybody in here. [Laughter]. And getting smaller.

That gives rise to transit lanes and it gives rise to access to resources and continental shelves that just were not available before. So there's big changes in just the maritime business.

We're starting to do more of our food, both protein and carbohydrates, being farmed at sea. So there's so much that has changed, just in our world in the maritime in those last 25 years.

This is the new game. If we're not ready to play the new game. If we go out with an American football defense and we're up against a pretty skilled soccer team, we're going to get a lot of goals scored on us. So we have to understand not only the competitors but also the character of the competition that we're in.

Audience: For directed energy I think to go on a Navy platform there may be a need to change the platform. We know that it's going to require tactics. Is there a willingness or an encouragement to actually change platforms in order to meet the new --

Admiral Richardson: What do you mean, change platforms?

Audience: Size may be different. Does it have to fit in the existing ships? Or is there a willingness to look at changing the ships so that it would accommodate some of the new technology?

Admiral Richardson: Well, I think you're going to have to. Right? I'll tell you sort of my approach to the ship, particularly future ships, I'll ask you. Private companies, if you can raise your hand if you're kind of in a private industry, you know, an industry partner. Okay. That's not as many hands as I expected.

Imagine going to your stockholders and saying hey, hang with me, just keep investing in this and in 25 years this thing's going to be a killer, right? It's going to be everything we dreamed of.

We have to shorten that. You would be laughed out of the room I think if you made that approach.

We did kind of another thought experiment that asked how far out into the future would you be willing to bet, if you had to make a prediction into the future, how far out would you be willing to bet one of your children's college education? Okay. A big sum, a big bet. How many people would say two years or less?

Okay, how about five years or less?

All right. Ten years or less?

Okay. How many people more than ten years? Okay. Are you a more than ten years person? Because I've got a deal for you. [Laughter]. All right.

It gets hard. Right? And so, but I'll tell you what, it will last. If you want to float something then there are some physical principles that will probably still be around after ten years. Right? So I'm going to need a hull. And I'm going to need a power system. Right? So I'll need to propel that ship and I'm going to need to generate a lot of power. And power, when you think about a 30-year ship in the Navy, that's kind of what we think about not. It's like computer memory. I'm going to buy as much as I can afford. As much power as I can afford. Because I know by the time I retire the ship I'll use it all. Okay?

Then on top of that, it's as modular and agile as it can be. So it's going to be designed in to modernize so that it's easy to bolt things in and bolt things out, right? That's sort of I guess how I think about it in terms of new ships.

This model works. We're not proceeding completely on faith. We've got some experience here. And it can be made to work so we just have to fake it in from the beginning.

I hope that answers your question.

IT's been a real delight talking to you all. Thank you very much. Tom, thanks again for inviting me. I look forward to speaking with y'all soon. Thanks.

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